

SNI

STANDAR NASIONAL INDONESIA

SNI 05 - 2668 - 1992

UDC 621.979.07

PUNCHES FOR PRESS DIES

Note :
Translation without guarantee
In the event of any doubt arising, the original
standard in Indonesian is to be evidence

Based on the proposal of the Ministry of Industry
this standard was approved by the
Standardization Council of Indonesia - DSN
to be the National Standard of Indonesia - SNI
with the following number

SNI 05 - 2668 - 1992

CONTENTS

	Page
1. SCOPE	1
2. TYPE	1
3. QUALITY REQUIREMENT	1
4. TES METHOD	7
5. PASSING GRADE REQUIREMENT.	8
6. DESIGNATION	8

PUNCHES FOR PRESS DIES

1. SCOPE

This standard includes type, quality requirement, test procedure and passing grade requirement of the punches for press dies.

2. TYPE

The punches shall be classified into three classes according to the shape:

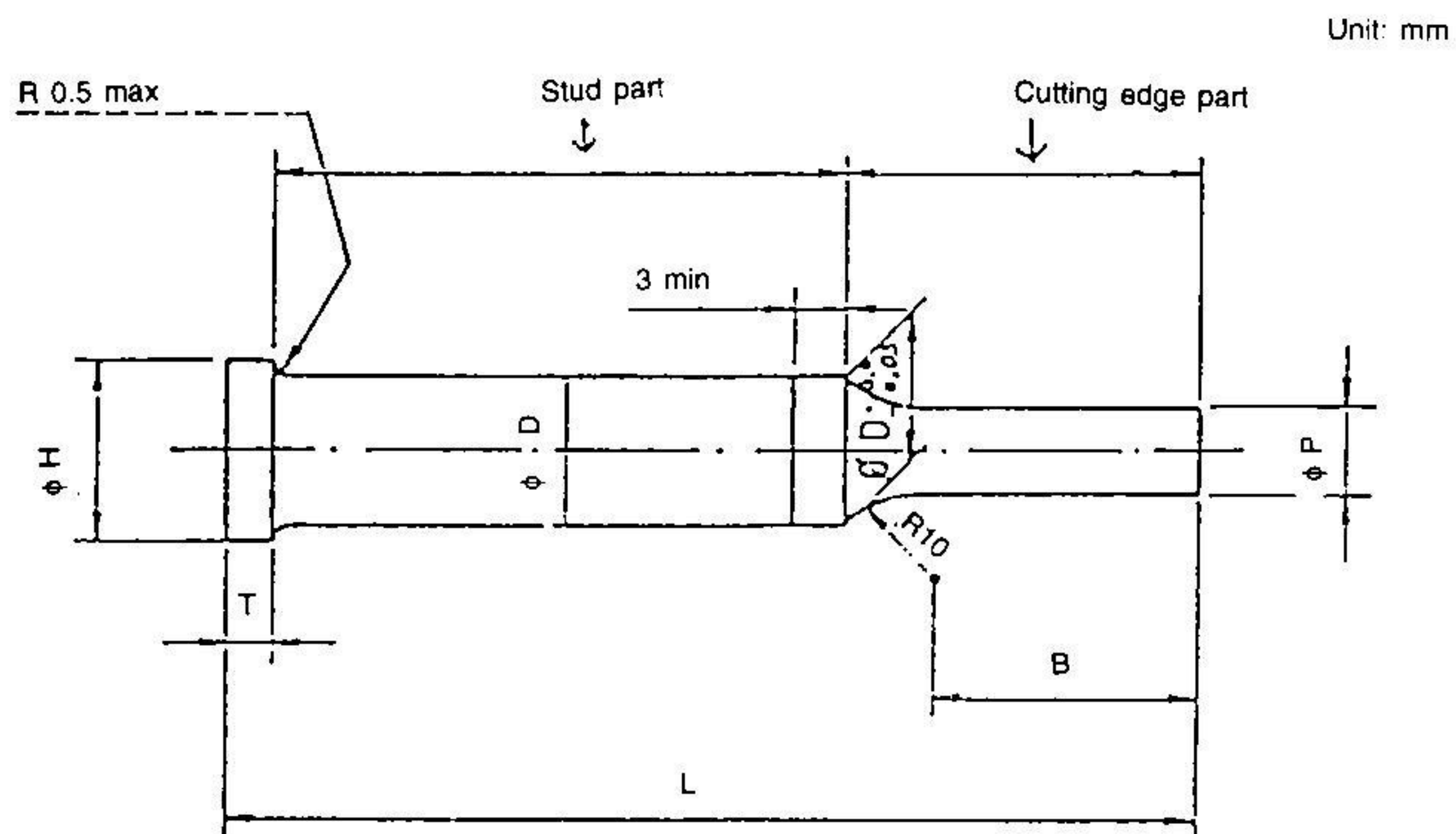
- Type A
- Type B
- Type C

3. QUALITY REQUIREMENT

3.1 Shape and dimensions.

3.1.1 The shape and dimensions of Type A punch shall be as specified in Figure 1 and Table I.

Figure 1 – Type A punch shape



Tabel I – Dimensions of Type A

Unit : mm

Nominal size	<i>P</i>		<i>D</i>		<i>H</i>		<i>L</i>		<i>T</i>		<i>B</i>
	Basic size	Tolerance	Basic size	Tolerance (no)	Basic size	Tolerance	Basic size	Tolerance	Basic size	Tolerance	Basic size
4	1.0	+ 0.01 0	4	+0.016 +0.008	6	0 − 0.2	40 50 60	+0.06 0	3	+0.3 0	4 6
	1.1										
	1.2										
	1.3										
	1.4										
	1.5										
	1.6										8
	1.7										
	1.8										
	1.9										
	2.0										
	2.1										
	2.2										
	2.3										
2.4											
2.5											
2.6											
2.7											
2.8											
2.9											
5	3.0		5	+0.016 +0.008	7				3		10
	3.1										
	3.2										
	3.3										
	3.4										
	3.5										
	3.6		6								
	3.7										
	3.8										
	3.9										
4.0	8										
4.2											
4.5											
4.8											
5.0											
6	5.1		6		8						12
	5.2										
	5.3										
	5.4										
	5.5										
	5.6										15
	5.7										
	5.8										
8	6.0	+ 0.01 0	8	+0.019 +0.010	11	0 −0.2		+0.6 0		+0.3 0	
	6.2										
	6.5										
	6.8										
	7.0										
	7.2										
	7.5										
	7.8										
10	8.0		10		13				4		15 20
	8.1										
	9.0										
	9.3										
	9.5										

Nominal size	<i>P</i>		<i>D</i>		<i>H</i>		<i>L</i>		<i>T</i>		<i>B</i>
	Basic size	Tolerance	Basic size	Tolerance (no)	Basic size	Tolerance	Basic size	Tolerance	Basic size	Tolerance	Basic size
13	10.0 10.5 11.0 11.5 12.0 12.5		13	+0.023 +0.012	16		40 50 60 70 80		5		15 20
16	13.0 14.0 15.0		16		19						15 20 25
20	16.0 17.0 18.0 19.0		20		23						
25	20.0 21.0 22.0 23.0 24.0		25	+0.028 +0.015	28						

Table I.

3.1.2 Type B

The shape and dimensions of punches shall be as specified in Figure 2 and Table II.

Figure 2 – Type B punch shape

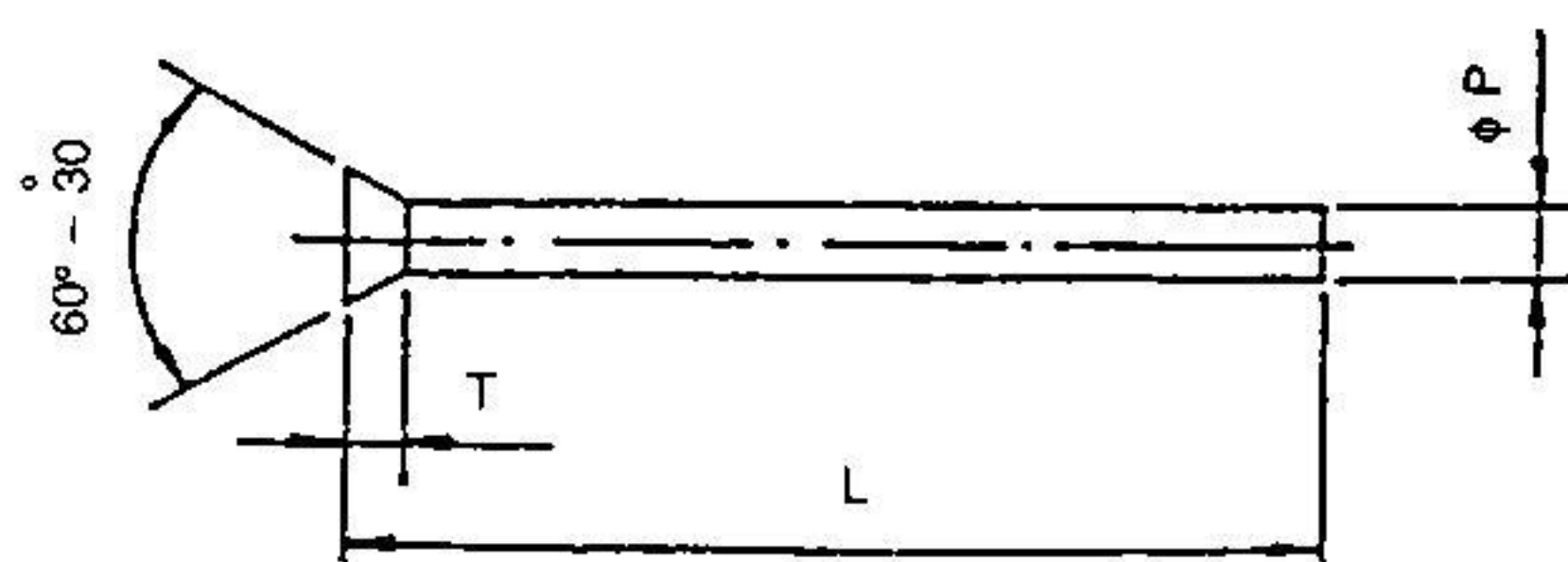


Table II - Type B Dimensions

Unit: mm

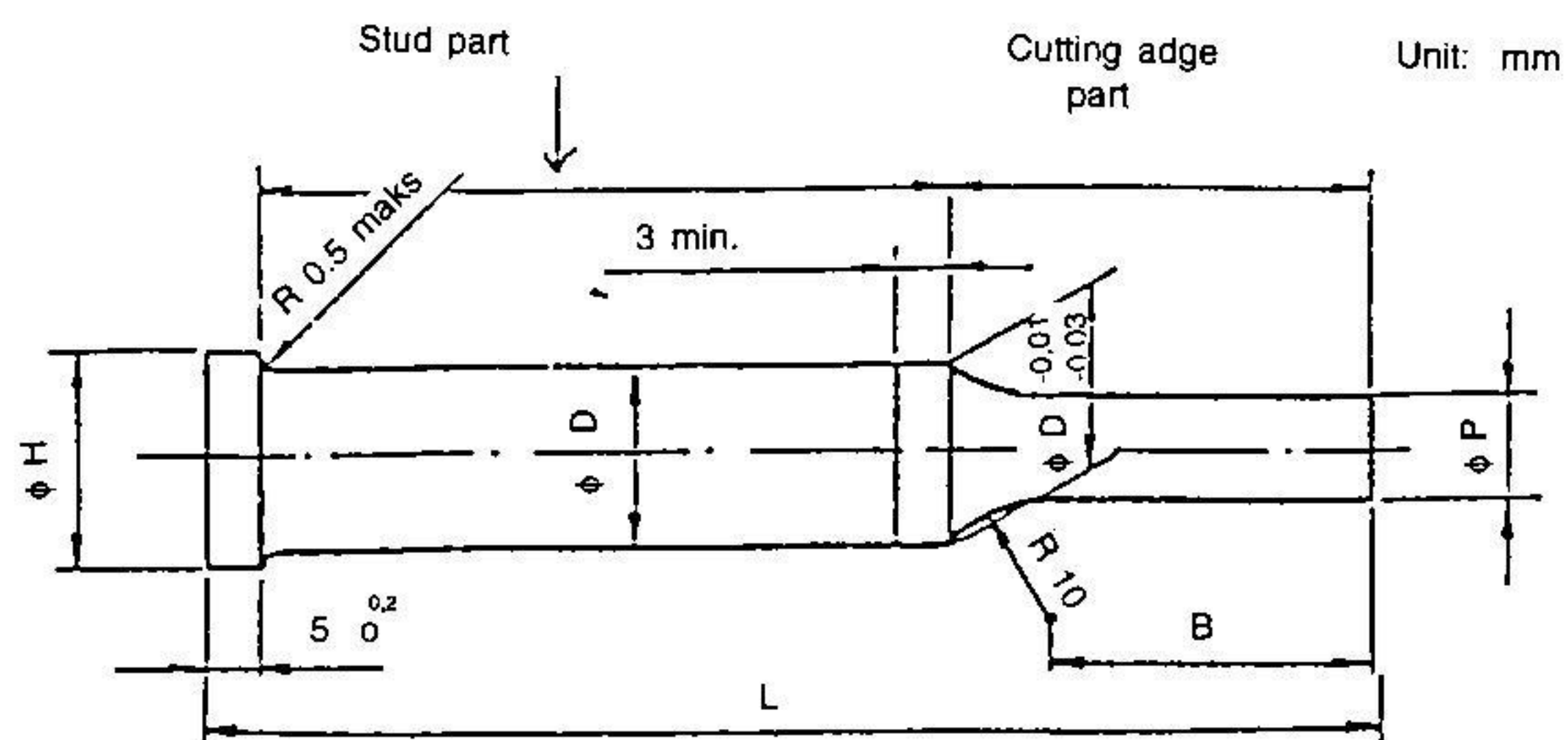
Nominal size	P		L		T	
	Basic size	Tolerance	Basic size	Tolerance	Basic size	Tolerance
1.0	1.0	+0.01 0	45 50 56 63 71	+0.6 0	0.7	+0.3 0
1.1	1.1				0.8	
1.2	1.2				0.8	
1.3	1.3				0.9	
1.4	1.4				1.0	
1.5	1.5				1.1	
1.6	1.6				1.1	
1.7	1.7				1.2	
1.8	1.8				1.3	
1.9	1.9				1.3	
2.0	2.0				1.4	
2.1	2.1				1.5	
2.2	2.2				1.5	
2.3	2.3				1.6	
2.4	2.4				1.7	
2.5	2.5				1.8	
2.6	2.6				1.8	
2.7	2.7				1.9	
2.8	2.8				2.0	
2.9	2.9				2.0	
3.0	3.0				2.1	
3.1	3.1				2.2	
3.2	3.2				2.2	
3.3	3.3				2.3	
3.4	3.4				2.4	
3.5	3.5				2.5	
3.6	3.6				2.5	
3.7	3.7				2.6	
3.8	3.8				2.7	
3.9	3.9				2.7	
4.0	4.0				2.8	
4.1	4.1				2.9	
4.2	4.2				2.9	
4.3	4.3				3.9	
4.4	4.4				3.1	

Nominal size	<i>P</i>		<i>L</i>		<i>T</i>	
	Basic size	Tolerance	Basic size	Tolerance	Basic size	Tolerance
4.5	4.5				3.2	
4.6	4.6				3.2	
4.7	4.7				3.3	
4.8	4.8				3.4	
4.9	4.9				3.4	

3.1.3 Type C

The shape and dimensions of punches shall be as specified in Figure 3 and Table III.

Figure 3 – Type C punch shape



Tabel III – Type C punch dimensions

Unit: mm

Nominal size	<i>P</i>		<i>D</i>		<i>H</i>		<i>L</i>		<i>B</i>		
	Devison of basic sizes	Tolerance	Basic size	Tolerance (m5)	Basic size	Tolerance	Basic size	Tolerance	Basic size	Tolerance	
4	1.0 min. 4.0 max.	+ 0.01 0	4	+ 0.009 + 0.004	7	0. + 0.2	40	+ 0.6 0	4	+ 1.5 0	
5	1.3 min. 5.0 max.		5		8		45		6		
6	1.6 min. 6.0 max.		6		9		50		8		
8	2.5 min. 8.0 max.		8		11		56		13		
10	4.0 min. 10.0 max.		10	+ 0.012 + 0.006	13		(60)		13 20		
13	5.0 min. 13.0 max.		13	+ 0.015 + 0.007	16		63				
16	8.0 min. 16.0 max.		16	+ 0.017 + 0.008	19		(70)		20 25		
20	12.0 min. 20.0 max.		20		23		71				
25	16.5 min. 25.0 max.		25	28	80						
						90					
							100				

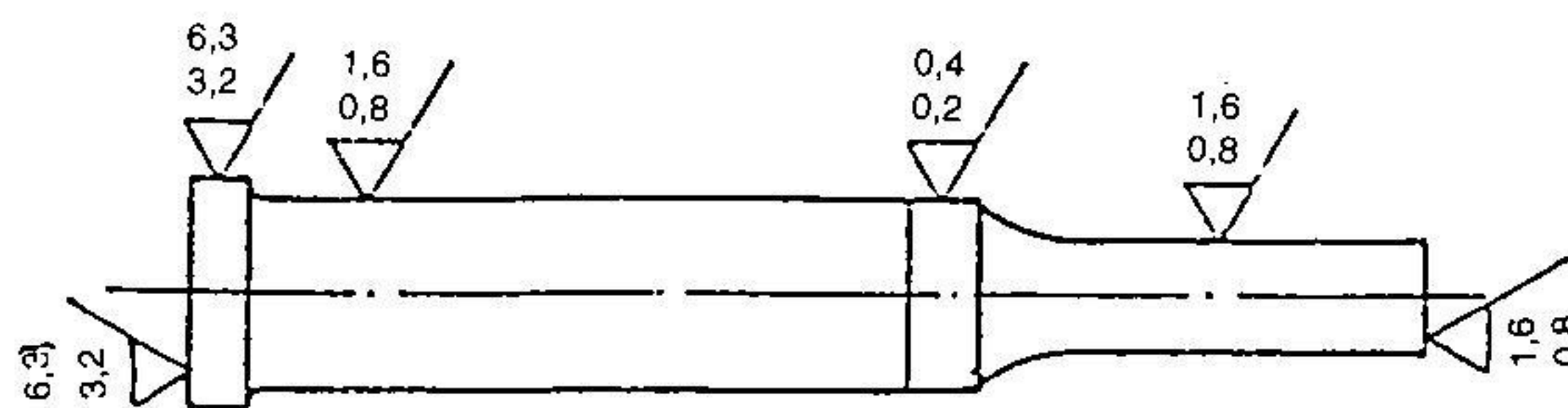
3.2 Appearance

The appearance of punch shall be free from defects such as cracks, flaws, rust and other defects harmful to use.

3.3 Surface roughness

The surface roughness of the cutting edge part and stud part of punch shall comply with Figure 4 and Table IV.

Figure 4 - Surface roughness marking



Tabel IV - Surface roughness marking

No.	Roughness degree	Roughness value (Ra) (μm)
1	N9 – N8	6.3 – 5.2
2	N7 – N6	1.6 – 0.8
3	N5 – N4	0.4 – 0.2

3.4 Concentricity and straightness

The concentricity and straightness of the diameter of the parallel part of cutting edge (P) to the diameter of stud part (D) shall be as specified in Table V.

3.5 Hardness

The hardness of the cutting edge part after hardening shall have minimum value of 60 HRC and maximum of 67 HRC for the materials specified in Table 6.

Tabel V – Concentricity and straightness value

Unit: mm

Type	Type A	Type B	Type C
Concentricity	0.01	–	0.01 max
Straightness	–	0.02 max	

3.6 Materials

The materials of punches is of tool steel and comply with JIS G 4403 – 1981 "High speed tool steels" and JIS G 4404 – 1981 "Alloy tool steels". The chemical composition of the materials are specified in Tabel VI.

Tabel VI - Chemical composition of materials

Symbol	Chemical composition									
	C	S _i	M _n	P	S	C _r	M _o	W	V	C _o
SKH 51	0.8-0.9	0.4	0.4	0.3	0.03	3.8-4.5	4.5-5.5	5.5-6.7	1.6-2.2	--
SKS 3	0.9-1	0.35	0.9-1.2	0.3	0.03	0.5-1	--	0.5-1	--	--
SKD 1	1.8-2.4	0.4	0.6	0.3	0.03	0.5	--	--	--	---
SKD 11	1.4-1.6	0.4	0.6	0.3	0.03	11-	0.8-1.2	--	0.2-0.5	---

or otherwise materials having performance equal or superior there to for use.

4. TEST METHOD

4.1 Surface roughness

The surface roughness of punch shall be measured by comparing it with standard specimen of roughness specified in JIS B 0659.

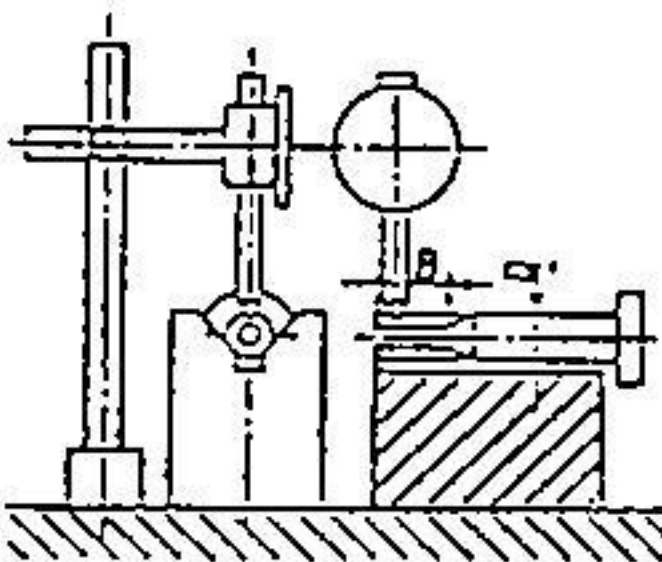
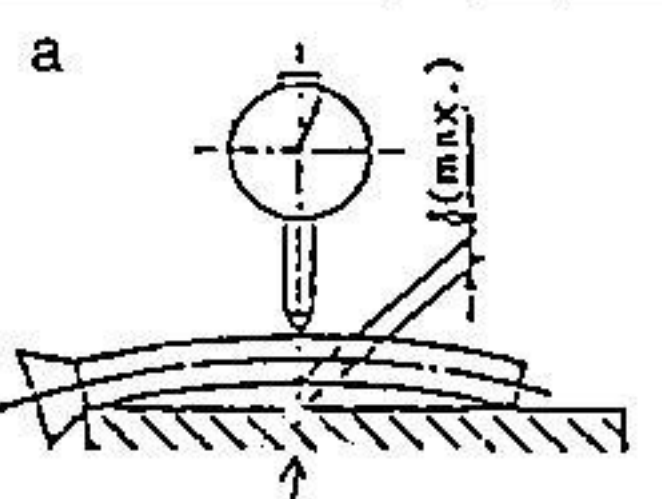
4.2 Hardness

The hardness test shall be measured according to SNI 19 - 0407- 1989.

4.3 Concentricity and straightness

The concentricity and straightness of punch shall be measured according to Tabel VII.

Tabel VII - Test procedure of concentricity and straightness

Measuring item	Measuring method	Diagram of measuring method	Measuring-instrument
Concentricity	Support the D part of punch with a V block, apply a dial gauge to the top of part B, rotate the punch and allow the maximum difference out of the readings of the pointer of dial gauge to be the measured value.		Dial gauge, precision surface plate and supporting measuring equipment
Straightness	Roll punch on precision surface plate and allow the maximum difference out of the readings thereof to be the measured value.	 Precision surface plate	

5. PASSING GRADE REQUIREMENT

The punches shall be inspected as to shape and dimensions, appearance, surface roughness, hardness, concentricity and straightness, and the results shall respectively comply with the requirements specified in paragraph 3.

The amount of sample represents the measurement shall comply the valid regulations.

6. DESIGNATION

6.1 Designation on product

Each punch of press dies shall be designated by standard number of:

6.1.1 Type A and type C

- materials
- type
- total length (L)
- parallel length of cutting edge (B)
- diameter part of cutting edge (P)

6.1.2 Type B

- standard number of materials
- type
- total length of punch (L)
- nominal diameter

The marking shall be in written, strong enough from scratching.

6.2 Marking of packages

Each packages shall be marked at least with the mark of product and trade/manufacturer mark and registration number/production series.

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